

CLAIMS

What is claimed is:

1. An ATM Packet Access Gateway (ATM PAG) system for managing an ATM bearer path between ATM endpoints, comprising:

an ATM PAG;

a first ATM bearer connection termination in said ATM PAG for terminating a first bearer connection with a first ATM endpoint;

a second ATM connection termination in said ATM PAG for terminating a second bearer connection with a second ATM endpoint;

a call control entity associated with said ATM PAG for communicating call control instructions to said ATM PAG, said call control instructions including instructions for logically concatenating said connections into an active ATM bearer path extending between said first ATM endpoint and said second ATM endpoint;

a Media Access Gateway (MAG) in said ATM PAG for controlling the establishment of said first and second bearer connections;

an ATM switch in said ATM PAG for establishing said first and second bearer connections and moving bearer traffic ATM packet payloads over said active ATM bearer path; and

said MAG and said ATM switch being adapted to cooperate in the logical concatenation of said first and second bearer connections and the formation of said active ATM bearer path.

2. A system in accordance with Claim 1 wherein said MAG and said ATM switch are co-located on a common integrated computer hardware platform and communicate via an internal interface to logically concatenate said connections.

3. A system in accordance with Claim 1 wherein said MAG and said ATM switch are located on separate computer hardware platforms and communicate via an external interface to logically concatenate said connections.

4. A system in accordance with Claim 3 wherein said external interface comprises UNI proxy signaling.

5. A system in accordance with Claim 3 wherein said external interface comprises an application programming interface.

6. A system in accordance with Claim 1 wherein said ATM switch is adapted to move bearer traffic ATM packet payloads between said first ATM endpoint to said second ATM endpoint by:

receiving a bearer traffic ATM packet over said first or second bearer connections;

determining from the packet header of said bearer traffic ATM packet that said packet should be directed to said first or second ATM endpoints; and

forwarding said bearer traffic ATM packet to said first or second ATM endpoints over said first or second bearer connections.

7. A system in accordance with Claim 1 wherein said system includes an ATM Line Access Gateway (LAG) terminating plural TDM lines, an ATM Trunk Access Gateway (TAG) terminating plural TDM trunks, and an ATM Access Network interconnecting said ATM PAG, said LAG and said TAG.

8. A system in accordance with Claim 3 wherein said system further includes one or more resource servers, interworking gateways, interworking units, or data termination systems.

9. A system in accordance with Claim 1 wherein said system includes more than one ATM PAG and an ATM Access Network interconnecting said ATM PAGs.

10. A system in accordance with Claim 1 wherein ATM signaling messages to/from said PAG are intercepted by said ATM switch and forwarded to/from said MAG.

11. A method for managing an ATM bearer path between ATM endpoints, comprising the steps of:

- terminating a first ATM bearer connection with a first ATM endpoint;
- terminating a second bearer connection with a second ATM endpoint;
- logically concatenating said first and second bearer connections into an active ATM bearer path extending between said first ATM endpoint and said second ATM endpoint; and
- moving bearer traffic ATM packet payloads over said active ATM bearer path.

12. A method in accordance with Claim 11 wherein said moving step includes moving bearer traffic ATM packet payloads between said first ATM endpoint and said second ATM endpoint by:

- receiving a bearer traffic ATM packet over said first or second bearer connections;
- determining from the packet header of said bearer traffic ATM packet that said packet should be directed to said first or second ATM endpoints; and
- forwarding said bearer traffic ATM packet to said first or second ATM endpoints over said first or second bearer connections.

13. A method in accordance with Claim 11 including terminating plural TDM lines at a Line Access Gateway (LAG), terminating plural TDM trunks at a Trunk Access Gateway (TAG), and interconnecting said ATM PAG, said LAG and said TAG via an ATM Access Network.

14. A method in accordance with Claim 12 further including providing a common call control entity for said ATM PAG, said LAG and said TAG.

15. A method in accordance with Claim 12 further including connecting one or more of ATM PAG, said LAG and said TAG to one or more resource servers, interworking gateways, interworking units, or data termination systems.

16. A method in accordance with Claim 12 further including connecting more than one ATM PAG via a shared ATM Access Network.

17. A method in accordance with Claim 11 wherein said concatenation step includes using proxy signaling.

18. A method in accordance with Claim 11 wherein said concatenation step includes using an application programming interface.

19. A method in accordance with Claim 11 wherein said concatenation step includes using an internal interface.

20. A method in accordance with Claim 11 further including intercepting signaling messages to and from said ATM endpoints.

21. A computer program product for managing an ATM bearer path between ATM endpoints, comprising:
one or more data storage media;
program means recorded on said one or more data storage media for:
terminating a first ATM bearer connection with a first ATM endpoint;
terminating a second bearer connection with a second ATM endpoint;
logically concatenating said first and second bearer connections into an active ATM bearer path extending between said first ATM endpoint and said second ATM endpoint; and

moving bearer traffic ATM packet payloads over said active ATM bearer path.

22. A program product in accordance with Claim 21 wherein said program means includes means for moving bearer traffic ATM packet payloads between said first ATM endpoint and said second ATM endpoint by:

receiving a bearer traffic ATM packet over said first or second bearer connections;

determining from the packet header of said bearer traffic ATM packet that said packet should be directed to said first or second ATM endpoints; and

forwarding said bearer traffic ATM packet to said first or second ATM endpoints over said first or second bearer connections.

23. A program product in accordance with Claim 2 further including program means for terminating plural TDM lines at a Line Access Gateway (LAG), terminating plural TDM trunks at a Trunk Access Gateway (TAG), and interconnecting said ATM PAG, said LAG and said TAG via an ATM Access Network.

24. A program product in accordance with Claim 21 further including program means for allowing a call control entity to serve as a call control entity for said ATM PAG, said LAG and said TAG.

25. A program product in accordance with Claim 21 further including program means for connecting one or more of ATM PAG, said LAG and said TAG to one or more resource servers, interworking gateways, interworking units, or data termination systems.

26. A program product in accordance with Claim 21 further including program means for connecting more than one ATM PAG via a shared ATM Access Network.

27. A program product in accordance with Claim 21 wherein said concatenation means uses proxy signaling.

28. A program product in accordance with Claim 21 wherein said concatenation means includes an application programming interface.

29. A program product in accordance with Claim 21 wherein said concatenation means includes an internal interface.

30. A program product in accordance with Claim 21 further including program means for intercepting signaling messages to and from said ATM endpoints.

31. An ATM Packet Access Gateway (ATM PAG) for managing an ATM bearer path between ATM endpoints, comprising:

a first ATM bearer connection termination for terminating a first bearer connection with a first ATM endpoint;

a second ATM connection termination for terminating a second bearer connection with a second ATM endpoint;

a Media Access Gateway (MAG) for controlling the establishment of said first and second bearer connections;

an ATM switch for moving bearer traffic ATM packet payloads over said active ATM bearer path; and

said MAG and said ATM switch being adapted to cooperate in the logical concatenation of said first and second bearer connections and the formation of said active ATM bearer path based on call control instructions received by said MAG from a call control entity.